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METHOD AND APPARATUS FOR LOW COST SIGNATURE  
TESTING FOR ANALOG AND RF CIRCUITS

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TC 2800 MAIL ROOM

5 This application is a continuation-in-part of the inventors' prior application  
Serial No. 09/575,488, filed May 19, 2000, entitled Method for Testing Circuits, and  
claims the benefit of the provisional application Serial No. 60/197,749, filed April 18,  
2000, entitled ATPG for Prediction of Analog Specifications, and Serial No.  
60/203,602, filed May 12, 2000, entitled Test Generation for High Frequency and RF  
10 Circuits, each incorporated by reference in their entireties herein.

Background of the Invention

The present invention relates to a method and apparatus for low cost signature  
testing for testing analog and RF circuits. More particularly, the invention relates to  
15 such a method and apparatus for use in manufacturing testing, and for use in  
monitoring the manufacturing process.

Analog and RF circuits are characterized by a set of performance parameters  
that typically vary continuously over a range. These performance parameters result  
from design as modified by variations in the manufacturing process that occur over  
20 time. Because of this variation, it is often necessary to test at least some of the  
circuits produced by a given manufacturing process to ensure that the performance  
parameters of the circuits fall within given specification limits.

However, traditional testing methods impose an increasing burden in the form  
of test time as a result of the ever increasing complexity and speeds of analog and RF  
25 circuits. For example, straightforward testing employs automated or automatic test  
equipment ("ATE") to stimulate the circuit under test (CUT) in a manner designed to  
induce the circuit to provide an output which directly reflects the value of each  
performance parameter which it is desired to test. The output is used to determine  
whether the parameter is within specification limits, in which case the CUT is  
30 considered "good" or is considered to "pass," or whether the parameter is outside the  
specification limits, wherein the CUT is considered "bad" or is considered to "fail."